

PROGRAMMABLE ANALOG BIAS CIRCUITS USING FLOATING GATE CMOS
TECHNOLOGY

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ABSTRACT

A voltage reference circuit includes storage, programming, and test floating gate transistors. The floating gates of the storage and programming transistors are shorted, while the floating and control gates of the test transistor are shorted. The test and storage transistors are connected between an input terminal and the inputs of a comparator, with the control gate of the test transistor also being connected to the input terminal. A reference voltage is programmed by applying the reference voltage to the input terminal and increasing the net positive charge on the floating gate of the storage transistor (via the programming transistor) until its source voltage matches the source voltage of the test transistor. Then, any test voltage at the input terminal can be compared to the programmed reference voltage by comparing the source voltages of the test and storage transistors.